UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,905	11/06/2006	Makiko Kitazoe	029567-00010	5377

4372 7590 10/21/2010

ARENT FOX LLP
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

EXAMINER	
CHEN, KEATH T	

ART UNIT	PAPER NUMBER
1712	

NOTIFICATION DATE	DELIVERY MODE
10/21/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No.	Applicant(s)	
	10/591,905	KITAZOE ET AL.	
	Examiner	Art Unit	
	KEATH T. CHEN	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 6-20* is/are pending in the application.

4a) Of the above claim(s) *10-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-9,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/03/2010 has been entered.

Response to Amendment

1. Applicant's amendment, filed on 08/03/2010, in response to the rejection of claims 1-3, 6-9, and 19-20 in the final office action, mailed on 05/04/2010, by amending claims 1 and 19 is entered and will be discussed below.

Election/Restrictions

2. Claims 10-18 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention II, there being no allowable generic or linking claim.

Information Disclosure Statement

The information disclosure statement filed 02/19/2010 fails to comply with 37 CFR 1.97(c) because it lacks the fee set forth in 37 CFR 1.17(p). It has been placed in the application file, but the information referred to therein has not been considered.

Claim interpretation

The newly amended limitation "means for setting the bias voltage applied to the catalytic body, and the polarity of the bias voltage, upon removing of adhering film, including a changeover switch that changes the polarity of the bias voltage to be applied" of claims 1 and 19 will not be treated as 35 USC 112 6th paragraph because

"(C) the phrase "means for" or "step for" must **not** be modified by sufficient structure, material, or acts for achieving the specified function"

See MPEP 2181 I.

On the other hand, the newly amended limitation "means for heating …" is treated according to 35 USC 112 6th paragraph and it is considered as a heating power supply 6.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 6-9 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibashi (US 6375756, hereafter '756), in view of Bridges (US 5012868, hereafter '868) and Reale (US 5451754, hereafter '754).

'756 teaches some limitations:

Claims 1 and 19: A self-cleaning catalytic chemical vapor deposition apparatus (Fig. 1, col. 4, line 59) which forms a thin film by a catalytic action of a resistance heated (by power source #30, col. 5, lines 11-13) catalytic body (#3, col. 5, lines 11-17) within a reaction chamber capable of being evacuated to a vacuum (col. 4, line 60),

a cleaning gas (abstract, however, this is intended use) that comprises one of an inert gas or a reducing gas (for example cleaning gas can be diluted by Ar or He, col. 7, lines 38-44, therefore, comprises an inert gas; alternatively, the apparatus is capable of supplying the hydrogen gas, col. 7, line 60, its function of cleaning gas is an intended use of the apparatus),

a gas-supply port through which the cleaning gas in introduced in the reaction chamber (gas supply vessel 2, col. 4, line 65),

means for heating (energy supply mechanism 30, col. 5, line 12, same as Applicants heating power supply) the catalytic body at about 1700 °C (the chamber is maintained at a temperature of about 1000-1800^{o} C, col. 1, line 32-33, and therefore is capable of maintained at about 1700 ^{o} C, the energy mechanism 30 is capable of heating "during substantially an entire duration of self-cleaning", see discussion of intended use below);

wherein the cleaning gas removes an adhering film which has adhered to the interior of the reaction chamber while suppressing etching of the catalytic body itself on the basis of a radical species generated when the cleaning gas comes into contact with the resistance heated catalytic body and is decomposed (fluorine react with deposited film to produce SiF4 while tungsten wire was stable during cleaning treatment, col. 8, lines 38-56).

Applicant's claimed requirements "a cleaning gas that comprises one of an inert gas or a reducing gas", "upon removing the adhering film", (wherein the apparatus

removes an adhering film which has adhered to the interior of the reaction chamber) "while suppressing etching of the catalytic body itself on the basis of a radical species generated when the cleaning gas comes into contact with the resistance heated catalytic body and is decomposed, the bias voltage applied to the catalytic body, and a polarity of the bias voltage", (wherein the catalytic body has a temperature maintained at about 1700^{o} C) "during substantially an entire duration of self-cleaning", and "the changeover switch changes the polarity of the bias voltage based on a kind of the inert gas and the reducing gas" are considered intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

'756 does not teach the other limitations of

Claims 1 and 19: the apparatus comprises a power supply to apply a bias voltage to the catalytic body, means for setting the bias voltage applied to the catalytic body, and the polarity of the bias voltage <u>including a changeover switch that changes the polarity of the bias voltage to be applied</u>.

‘868 is an analogous art in the field of corrosion inhibition in a heating electrode (abstract), particularly in providing maximum corrosion protection over an extended working life at minimum cost (col. 3, lines 54-59). ‘868 teaches by applying a DC bias voltage to the heating circuit to inhibit corrosion (col. 4, lines 1-4) and a switch (#238, Fig. 3) to adjust positive or negative polarity (col. 8, lines 37-40) and an ability to maintain neutral potential (col. 9, lines 21-26).

‘754 is an analogous art in the field of controlling charge of substrate (abstract) particularly in sputtering metal film (col. 3, lines 52-53). ‘754 teaches a changeover switch which change polarity of the bias voltage, including ground, applied to the shield (col. 4, lines 30-39) to control the charge deposited on the substrate (#14).

At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to have combined ‘868 and ‘754 with ‘756. Specifically, to have applied a bias voltage, as taught by ‘868, to the hot element (#3) in the apparatus of ‘756, and furthermore to have adopted the bias voltage switch as taught in Fig. 1 of ‘754 to switch the polarity as taught by '868.

The motivation would have been to inhibit corrosion as taught in both ‘756 (col. 6, lines 19-26) and ‘868 (col. 4, lines 1-4) and to provide polarity switch capability as taught by ‘868 (col. 8, lines 37-40 and col. 9, lines 21-26).

Note the limitations “the changeover switch changes the polarity of the bias voltage based on a kind of the inert gas and the reducing gas” is an intended use. The combined apparatus is capable of this operation, for example, by operator manually change the switch depending on the feeding gas.

‘756 further teaches the limitations of:

Claim 2: The self-cleaning catalytic chemical vapor deposition apparatus according to claim 1, further comprising a radical species generator (plasma generation, col. 7, lines 45-48) which decomposes the cleaning gas into a radical species and introduces the radical species into the reaction chamber.

‘868 further teaches a DC current sensor (#55 in Fig. 1 or #251, Fig. 3, col. 9, lines 51-62), as taught by ‘868, to control the polarity of inhibition. It would have been obvious to a person of ordinary skill in the art to apply this current sensor to monitor the resistance of the catalytic body/hot element and monitor its stability during cleaning.

Therefore, the above combination would have had the limitations of:

Claim 9: The self-cleaning catalytic chemical vapor deposition apparatus according to claim 1, further comprising a monitoring device (#55 of ‘868) which detects the occurrence of etching of the catalytic body itself on the basis of electric resistance of the catalytic body.

The apparatus of the above combination would have the capability of supplying various gases and setting polarity according to the gases species of the claim limitations of claims 3, 6-8 and 20 (all intended use).

Response to Arguments

Applicants' arguments filed 08/03/2010 have been fully considered but they are not persuasive.

4. Applicants argue that "means for setting the bias voltage" **may** include the controller 10, the power supply 8 and the changeover switch 8a, and the upon removing an adhering film is supported in the Specification, see the second complete paragraph of page 9 to the second complete paragraph of page 10.

These arguments are found not persuasive.

First of all, Applicants amendment by modifying the structure of "means for" excludes 35 USC 112 6th paragraph, see the claim interpretation above.

Even without the structure modification "including a changeover switch", the "means for setting the bias voltage … and the polarity" only needs a changeover switch and power supply to **fulfill such function**, does not require a controller 10. Applicants appear to be uncertain what exactly "means for setting ..." included. Applicants are welcomed to specifically put on record what structure "means for setting ..." is, or amended the claims to these structure explicitly.

Secondly, "upon removing an adhering film" is considered an intended use of the apparatus. On page 15, lines 15-20 of the Specification, it only describes the procedure

of operation, with any structural content and would not have added any structural content even if the "including a changeover switch …" is removed from the claim.

Reale '754 teaches the change-over switch and the DC sources 23 and 27, which are the "means for setting … and the polarity" if 35 USC 112 6th paragraph is properly set forth in the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEATH T. CHEN whose telephone number is (571)270-1870. The examiner can normally be reached on 6:30AM-3 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEATH T CHEN/
Examiner, Art Unit 1712